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Mental Health of Transgender Youth in Care at an Adolescent Urban Community Health Center: A Matched Retrospective Cohort Study

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A B S T R A C T

Purpose: Transgender youth represent a vulnerable population at risk for negative mental health outcomes including depression, anxiety, self-harm, and suicidality. Limited data exist to compare the mental health of transgender adolescents and emerging adults to cisgender youth accessing community-based clinical services; the present study aimed to fill this gap.
Methods: A retrospective cohort study of electronic health record data from 180 transgender patients aged 12–29 years seen between 2002 and 2011 at a Boston-based community health center was performed. The 106 female-to-male (FTM) and 74 male-to-female (MTF) patients were matched on gender identity, age, visit date, and race/ethnicity to cisgender controls. Mental health outcomes were extracted and analyzed using conditional logistic regression models. Logistic regression models compared FTM with MTF youth on mental health outcomes.
Results: The sample (N = 360) had a mean age of 19.6 years (standard deviation, 3.0); 43% white, 33% racial/ethnic minority, and 24% race/ethnicity unknown. Compared with cisgender matched controls, transgender youth had a twofold to threefold increased risk of depression, anxiety disorder, suicidal ideation, suicide attempt, self-harm without lethal intent, and both inpatient and outpatient mental health treatment (all $p < .05$). No statistically significant differences in mental health outcomes were observed comparing FTM and MTF patients, adjusting for age, race/ethnicity, and hormone use.
Conclusions: Transgender youth were found to have a disparity in negative mental health outcomes compared with cisgender youth, with equally high burden in FTM and MTF patients. Identifying gender identity differences in clinical settings and providing appropriate services and supports are important steps in addressing this disparity.
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IMPLICATIONS AND CONTRIBUTION

Transgender youth were found to have a disparity in negative mental health outcomes compared with cisgender youth, with equally high burden in female-to-male and male-to-female youth. Identifying gender identity differences in clinical settings and providing appropriate services and supports are important steps in addressing this disparity.

"Transgender" youth have an assigned sex at birth that is different from their current gender identity [1]. Gender identity refers to a person's internal felt sense of self [2]. Transgender adolescents and emerging adults represent an underserved and under-researched population with specific medical and mental health needs [3,4]. The U.S. population-level surveys do not

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routinely include survey items to identify transgender youth respondents; therefore, there is a lack of national epidemiologic data to document and monitor health disparities by gender identity [1], including among youth [5]. Despite the dearth of quality comparative national-level data on the mental health of transgender versus cisgender (nontransgender) youth, local and regional studies suggest transgender adolescents and emerging adults are a subpopulation of youth burdened by adverse health indicators, particularly in the mental health domain including depression, anxiety, suicidality, and self-harm behaviors [6–11].

Clinical settings and electronic health records (EHRs) have been identified as important and underutilized sources of information about sexual minority (lesbian/gay/bisexual) and gender minority (transgender) health [12,13]. Clinical settings and EHR are particularly valuable for transgender health in light of the dearth of comparative data that exist to understand the health and well-being of transgender relative to cisgender patients. Only a small handful of studies using transgender youth patient data have been conducted in clinical settings in the United States, and most of these have occurred in multidisciplinary gender clinics [7,14,15]. Spack et al. conducted a chart review study to explore characteristics of 97 children and adolescents age <21 years (mean age, 14.8 years; standard deviation [SD], 3.4) with gender identity disorder (GID) seen consecutively between 1998 and 2009 at a multidisciplinary gender clinic at Boston Children's Hospital in Massachusetts. Overall, 44% (n = 43) of patients presented for medical care with significant psychiatric histories, including diagnoses of depression (58%), general anxiety disorder (16%), a history of self-mutilation (21%), and/or one or more suicide attempts (9%) [15]. Another study conducted at Children's Hospital, Los Angeles, in California examined associations between quality of life measures and psychosocial factors among 66 youth aged 12–24 years with GID who received care between 2011 and 2012. Perceived burden—the extent to which transgender identity interferes with life activities or causes distress—was positively correlated with greater depression and negatively associated with self-reported life satisfaction [7].

These clinical studies offer valuable information about transgender youth accessing services at multidisciplinary gender clinics at the U.S. pediatric medical centers. However, there are limitations. Youth in these studies received a psychiatric GID diagnosis per the DSM-4 Text Revision (DSM-4-TR) [16]. Given the 2013 changes to the DSM-5, which changed diagnoses to gender dysphoria, research is needed that (1) does not use GID as a sole inclusion criteria and (2) refrains from conceptualizing gender identity variation as psychopathology [17]. Patients presenting to specialized multidisciplinary gender clinics may not represent the larger population of transgender patients, including those who do not meet diagnostic criteria for gender dysphoria. The youth in these studies tend to be from higher socioeconomic status families that have health insurance, present for medical care with their parents/families—meaning their guardians are engaged in some way—and are largely white (non-Latino/Hispanic)/Caucasian [14,15]. In addition, the U.S. studies of transgender youth in clinical settings have not included a cisgender comparison group, which is essential to examine mental health disparities [18].

There are no published studies that utilize EHR data to examine the mental health of diverse transgender youth with varied socioeconomic and racial/ethnic backgrounds presenting to the U.S. community-based primary care youth clinic settings. Community-based health clinics are a unique point of entry to care for youth, especially for people of low socioeconomic and racial/ethnic minority backgrounds [19]. In 2008, children and youth made up 33% of all patients seen in over 1,100 Federally Qualified Community Health Centers, and they were more likely to be uninsured, poor, or from a racial/ethnic minority background than those seen in private practice settings [19,20]. Examining gender differences among transgender youth who access community-based primary care youth clinic settings is also important to understand whether and how health care utilization and service needs differ for female-to-male (FTM) and male-to-female (MTF) youth patients.

This study is designed to compare the mental health of transgender and cisgender youth in a community-based setting. To achieve this goal, this study (1) examines mental health indicators among diverse transgender youth engaged in care at an urban pediatric and young adult community-based health center; (2) tests whether transgender youth patients bear increased mental health burden compared with matched cisgender patients; and (3) explores differences in psychiatric diagnoses between FTM spectrum and MTF spectrum youth patient populations.

Methods

Study design, participants, and procedures

A retrospective observational cohort study of EHR data was conducted at the Sidney Borum, Jr. Health Center, an urban community-based health center serving youth in Boston, Massachusetts, that is part of Fenway Health. Transgender patients aged 12–29 years seen for one or more medical and/or behavioral health care visits between 2002 and 2011 were included in this study. Transgender patients (n = 180) were identified by an EHR code "transgender" based on self-reported transgender identity on patient registration forms, behavioral health assessment forms, or direct communication with medical or behavioral health professionals during clinical visits. Direct patient communication of transgender identity to a physician or behavioral health professional was documented in narrative notes on the clinical visit and/or listed as a diagnosis of GID [16] in the patient's diagnostic history. All study activities were reviewed and approved by the organization's Institutional Review Board.

Description of clinical context

During the period covered by data collection from the Sidney Borum, Jr. Health Center, clinical site annual visits by unduplicated patients varied between 2,000 and 3,000 patients per year at the clinic. Clinicians providing care for transgender youth at the site included M.D.s, nurse practitioners, and clinical social workers working collaboratively as a team. This team met regularly once to twice a month to review cases and assess medical and behavioral health protocol applicability before supporting hormones for gender transition and writing prescriptions for hormones and other adjunct medications. Transgender care for youth under age 18 years required family participation, broadly defined, and the consent of the youth's guardians, including state-appointed guardians in some situations. Youth aged 18 years and older could consent to care supporting gender transition for themselves. Health insurance or the ability to pay for services was required for transition-focused transgender care at the clinic. However, with the implementation of Massachusetts state health insurance

reform starting in 2006, many barriers to access to care for transgender youth were removed.

Matched sampling

Matched sampling was utilized to reduce bias, increase precision, and control for confounding in this observational study [21]. Transgender youth were categorized as being on the FTM spectrum (assigned a female sex at birth and identify as man, male, transgender, FTM, trans man, and trans masculine) or on the MTF spectrum (assigned a male sex at birth and identify as woman, female, transgender, MTF, trans woman, and trans feminine). The 106 FTM and 74 MTF patients were matched to cisgender patient controls on (1) visit date: an office visit ±3 months of the office visit where the transgender patient received a transgender "flag" in their patient chart or the office visit where this was first reported; (2) gender identity; (3) age; and (4) race/ethnicity. If a patient's ethnicity was Latino/Hispanic and their race was listed as something other than Latino/Hispanic, the patient was categorized as multiracial and matched to other multiracial individuals. Six transgender patients (3.3% of the transgender patient sample) were partially matched on age and gender identity only, not on race/ethnicity, because of the few number and homogeneity of younger age patients.

A Structured Query Language query pulled the matching criteria for each transgender patient, and a second query was done to find a match for each patient. When multiple patients matched, a randomly generated number was assigned to each possible control, and the matching cisgender patient with the highest randomly generated number was assigned as the control. Once a control was selected, they were removed from the pool of available matches.

For transgender patients that did not have an exact match on all matching criteria, the matching criteria were ranked (as numbered previously) and adjusted in a systematic way to obtain a match for the patient. When no match was found, the criterion that patients must match on race/ethnicity was removed. If still no matches were found, then the age of matches was expanded to be ±1 year of the case patient. These revisions to the matching criteria were sufficient to find matches for all the transgender patients in the cohort.

A Microsoft Access database was created with separate forms and tables corresponding to each category of the data extraction measures. Structured Query Language queries extracted demographic and some medical information from the EHR, which was then exported into the Access database. Data about patients' mental health history were obtained by individual manualized chart review.

Measures

Demographic data were extracted from patient registration and behavioral intake forms, as well as clinical visit physician narratives. Demographics extracted included age (continuous in years calculated by subtracting date of first appointment from date of birth), race/ethnicity (white, black, Latino/Hispanic, other race/ethnicity, multiracial, and missing/unknown), gender identity (non–gender minority female, non–gender minority male, FTM, MTF), and cross-sex hormone use (yes/no).

Depression and anxiety disorders were recorded only for patients with physician-endorsed diagnoses listed in the EHR per DSM-4-TR criteria [16]. Patient self-report of lifetime suicidality (suicidal ideation and suicide attempt captured separately), self-harm without lethal intent (nonsuicidal self-injury; e.g., cutting, burning, other self-harm behaviors), outpatient mental health care (e.g., psychotherapy), and inpatient mental health care (e.g., inpatient psychiatric hospitalization, substance abuse treatment) were recorded in data abstraction from physician clinical visit narratives.

Data analysis

SAS version 9.3 statistical software (SAS Institute Inc., Cary, NC, USA) was used for data analysis. Statistical significance was predetermined at the alpha level of .05. Univariable descriptive statistics (frequencies, means, SDs) were estimated. Bivariate statistics compared transgender and cisgender youth. *t* Test statistics were estimated for continuous variables (with appropriate tests for normality) and χ^2 test statistics were used for binary and categorical variables. Conditional logistic regression models for matched pairs data [22] compared transgender and matched cisgender youth to examine between-group differences in mental health. To examine within-group differences, logistic regression models restricted to transgender youth were fit to compare FTM and MTF patients, regressing each mental health outcome on gender identity (FTM vs. MTF; unadjusted), then adjusting for age and race/ethnicity, and finally adjusting for age, race/ethnicity, and cross-sex hormone use. Risk ratios (RRs) and 95% confidence intervals (CIs) were estimated rather than odds ratios because the prevalence of outcomes was >10% [23].

Results

Demographics

The overall sample had a mean age of 19.6 (SD, 3.0), 42.5% were white, 33.3% were racial/ethnic minority, and 24.2% were race/ethnicity unknown. As expected due to matching by age and race/ethnicity, no significant differences were found by age and race/ethnicity comparing transgender and cisgender youth (Table 1). The majority (61.7%; n = 111) of transgender youth were being treated with cross-sex hormones.

Between-group differences: comparing transgender and cisgender youth

Compared with cisgender matched youth, transgender youth had an elevated probability of having DSM-4-TR diagnosed depression (50.6% vs. 20.6%; RR, 3.95; 95% CI, 2.60–5.99) and anxiety (26.7% vs. 10.0%; RR, 3.27; 95% CI, 1.80–5.95; Table 2). Transgender youth also disproportionately endorsed suicide ideation (31.1% vs. 11.1%; RR, 3.61; 95% CI, 2.17–6.03), suicide attempt (17.2% vs. 6.1%; RR, 3.20; 95% CI, 1.53–6.70), and self-harm without lethal intent (16.7% vs. 4.4%; RR, 4.30; 95% CI, 1.95–9.51) relative to matched controls. A significantly greater proportion of transgender youth compared with matched cisgender controls accessed inpatient mental health care (22.8% vs. 11.1%; RR, 2.36; 95% CI, 1.33–4.20) and outpatient mental health care (45.6% vs. 16.1%; RR, 4.36; 95% CI, 2.69–7.05) services.

Within-group differences: comparing female-to-male and male-to-female transgender youth

FTM and MTF transgender youth were compared on mental health indicators. No statistically significant differences in

Table 1
Sociodemographics: comparing transgender youth and cisgender (non-transgender) controls (N = 360)

	Transgender N = 180 (50.0%)		Cisgender N = 180 (50.0%)		Bivariate statistics	
	Mean	SD	Mean	SD	*t* test (*df*)	*p* value
Age					−.78 (358)	.435
Continuous in years	19.7	3.1	19.5	3.0		
	n	%	n	%	χ^2 (*df*)	*p* value
Race/ethnicity					7.18 (5)	.208
1 White	87	48.3	66	36.7		
2 Black/African-American	17	9.4	23	12.8		
3 Latino/Hispanic	19	10.6	23	12.8		
4 Other race/ethnicity	12	6.7	10	5.6		
5 Multiracial	9	5.0	7	3.9		
6 Unknown race/ethnicity	36	20.0	51	28.3		
Race/ethnicity					5.77 (2)	.056
Racial/ethnic minority	57	31.7	63	35.0		
White (non-Hispanic)	87	48.3	66	36.7		
Unknown race/ethnicity	36	20.0	51	28.3		

mental health indicators were found comparing FTM and MTF adolescent and emerging adult patients, including after adjustment for age, race/ethnicity, and hormone use (Table 3).

Discussion

The present study fills a key gap in the existing mental health research literature on transgender adolescents and emerging adults. First, in a transgender patient population not defined solely by GID and presenting at a community-based youth clinic, this study found high prevalence of depression, anxiety, suicide ideation, suicide attempt, self-harm without lethal intent, and lifetime inpatient mental health care utilization, corroborating research in other clinical settings [7,14,15,24] and in convenience sample studies [6,9,10,25,26]. Second, this study's ability to compare mental health in transgender and cisgender patients in a community-based setting provides a unique addition to the literature. Findings demonstrate that a significantly higher proportion of transgender adolescent and emerging adult patients were burdened by mental health concerns than cisgender youth. Third, no statistically significant differences in mental health were found between FTM and MTF transgender youth patients. This suggests equally high burden of mental health disorders in FTM and MTF adolescent and emerging adult patients. Findings point to the need for gender-affirming mental health services and interventions to support transgender youth. Community-based clinics should be prepared to provide mental health services or referrals for transgender patients.

Study findings should be interpreted alongside several limitations. First, nearly half of transgender patients were accessing outpatient mental health services, and transgender patients were more likely to access mental health services than cisgender youth. Therefore, transgender youth may be more likely to have had a DSM-4-TR–based depression and/or anxiety diagnosis in their EHR, which could inflate prevalence estimates (i.e., issues of measurement equivalence). Second, as a retrospective chart review, this study is subjected to common limitations of this research design (e.g., incomplete documentation, information that is unrecorded, variance in the quality of information recorded by medical professionals) [27]. Third, several transgender patients were partially matched to cisgender patients on age and gender identity only, which may have introduced some bias in study findings. Fourth, youth in this study were seeking care at an urban community-based health center; thus, findings may not generalize to other clinic settings and geographic locations. Last, the elevated mental health burden among transgender youth is hypothesized to result from experiences of social stress such as family rejection, bullying, violence, victimization, and discrimination, which occur due to disadvantaged social status [28,29]. These potential confounding variables were not captured in our chart review. Future research is needed to contextualize the mental health concerns of transgender adolescent and emerging adult patients in community-based clinic settings, including prospective assessment of social stressors and mental health symptoms and diagnoses over time. Such longitudinal investigations will also allow for specific consideration of developmental processes that may accompany mental health outcomes in different developmental periods, in which the present study was not able to examine due to the age-matched design.

A strength of this study is that the sample was not restricted to youth with a GID diagnosis. As reflected in recent changes to the 2013 DSM-5 [30], which removed GID as a diagnosis and replaced it with gender dysphoria, being transgender is no longer conceptualized as a disorder. Over the past 10 years, there has been a move away from pathologizing transgender people in mental health and clinical settings [31]. It generally accepted that wide spectrum of nonpathological diverse gender identities and gender expressions exist [31–33]. Thus, this study offers unique comparative data that directly compare the health and well-being of transgender and cisgender youth using a nonpathological perspective of gender variation.

Reducing health disparities [34]—through addressing inequities—is a core aim of Healthy People 2020 [35]. Collecting

Table 2
Between-group differences documenting mental health disparities: transgender compared with matched cisgender (nontransgender) youth patients (N = 360).[a]

	Transgender (n = 180)		Cisgender (n = 180)		Transgender versus cisgender		Total sample (N = 360)	
	n	%	n	%	RR (95% CI)	*p* value	n	%
Depression (DSM-4-TR diagnosis)	91	50.6	37	20.6	3.95 (2.60–5.99)	<.0001	128	35.6
Anxiety (DSM-4-TR diagnosis)	48	26.7	18	10.0	3.27 (1.80–5.95)	.0001	66	18.3
Suicide ideation	56	31.1	20	11.1	3.61 (2.17–6.03)	<.0001	76	21.1
Suicide attempt	31	17.2	11	6.1	3.20 (1.53–6.70)	.002	42	11.7
Self-harm without lethal intent	30	16.7	8	4.4	4.30 (1.95–9.51)	.0003	38	10.6
Inpatient mental health services	41	22.8	20	11.1	2.36 (1.33–4.20)	.004	61	16.9
Outpatient mental health services	82	45.6	29	16.1	4.36 (2.69–7.05)	<.0001	111	30.8

CI = confidence interval; DSM-4-TR = DSM-4 Text Revision; RR = risk ratio.
[a] Participants were matched on age, race/ethnicity, and visit date.

Table 3
Within-group differences: comparing FTM and MTF transgender youth patients (N = 180)

	FTM (n = 106)		MTF (n = 74)		FTM versus MTF transgender[a]					
					Bivariate		Age and race adjusted		Age, race, and hormone adjusted	
	n	%	n	%	RR (95% CI)	*p* value	RR (95% CI)	*p* value	RR (95% CI)	*p* value
Depression (DSM-4-TR diagnosis)	58	54.7	33	44.6	1.50 (.83–2.73)	.182	1.17 (.54–2.51)	.697	1.64 (.86–3.09)	.131
Anxiety (DSM-4-TR diagnosis)	28	26.4	20	27.0	.97 (.50–1.90)	.927	.47 (.19–1.17)	.105	.77 (.37–1.61)	.490
Suicide ideation	32	30.2	24	32.4	.90 (.48–1.71)	.750	1.09 (.47–2.53)	.834	.99 (.50–1.96)	.979
Suicide attempt	16	15.1	15	20.3	.70 (.32–1.52)	.367	.50 (.18–1.41)	.188	.86 (.38–1.95)	.713
Self-harm without lethal intent	21	19.8	9	12.2	1.78 (.77–4.15)	.179	1.68 (.69–4.10)	.256	1.75 (.71–4.30)	.222
Inpatient mental health services	23	21.7	18	24.3	.86 (.43–1.74)	.680	.99 (.39–2.49)	.982	.96 (.46–2.03)	.922
Outpatient mental health services	50	47.2	32	43.2	1.17 (.65–2.13)	.603	1.18 (.54–2.61)	.676	1.43 (.75–2.71)	.277

CI = confidence interval; DSM-4-TR = DSM-4 Text Revision; FTM = female to male; MTF = male to female; RR = risk ratio; SD = standard deviation.
[a] Age, race/ethnicity, and cross-sex hormone use were not statistically significant in any of the fitted models.

gender-inclusive measures in patient settings is recommended for health services research and surveillance efforts to monitor health disparities and improve clinical practice [12,13]. A two-step approach is recommended where assigned sex at birth and current gender identity are both assessed, either routinely at patient registration and/or during clinical care. Clinical assessment of patient-reported outcomes [36,37] can be implemented as part of routine clinical care visits for transgender youth to collect data that will inform clinical practice and future intervention development to reduce mental health disparities.

The present study is one of the first studies in the United States to document mental health disparities by transgender status in youth using patient data and a controlled design to compare transgender and cisgender adolescents and emerging adults. Based on these findings, and consistent with prior clinical recommendations [38–40], it is recommended that primary care providers include gender identity as part of a basic patient history. Training programs and continuing education programs for primary care providers and mental health providers should include gender identity education. Providers should familiarize themselves with community resources for transgender youth. Patients with a transgender identity or history should be recognized as having higher risk for mental health concerns and should be carefully screened and evaluated. Patients identified with co-occurring transgender identity and mental health concerns should be seen by a mental health provider who is qualified to provide evidence-based care with sensitivity to the diversity of gender identity and expression.

The Sidney Borum, Jr. Health Center, the clinical site where this study took place, while devoting a good part of its resources to the care of transgender youth, is still a primary care clinic for adolescents and emerging adults. Therefore, this study shows that expanded care for transgender youth can be provided in the context of overall pediatric care: integration of behavioral health, psychiatry, and pediatric primary care—a medical home approach—can more than adequately support the medical and behavioral health needs of transgender youth and provide a locus of care for reduction of psychiatric outcomes described by the study. Including questions about gender as well as sexuality in standardized annual health reviews in pediatric practices in combination with recognized adolescent depression screenings can identify transgender youth at high risk for self-harm and other mental health outcomes. The practice of care at this clinic creates a framework within which risk behaviors can potentially be addressed and may serve as a model for other youth-oriented clinics so that transgender youth feel safe, accepted, and receive the gender-affirming care they need and deserve.

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